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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/492,373

01/27/2000

Yuzo Horikoshi

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EXAMINER

SHOSHO, CALLIE E

ART UNIT

PAPER NUMBER

1714

MAIL DATE

DELIVERY MODE

05/03/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/492,373

Applicant(s)

HORIKOSHI ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,6,7,9,10,14-17 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,6,7,9,10,14-17 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' amendment filed 1/25/07.

In light of the new grounds of rejection set forth below utilizing Kamada et al. (U.S. 5,695,899), the following action is non-final.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 4, 6-7, 9-10, 14-17, and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 14, 16, 17, and 20 have each been amended to recite copolymer "obtained from a radical polymeric monomer composition consisting essentially of (a) 20 through 90 wt.% of styrene, (b) 10 through 80 wt.% alkyl acrylate or alkyl methacrylate wherein said alkyl acrylate or alkyl methacrylate is at least one selected from the group consisting of butyl acrylate, 2-ethylhexyl acrylate, and lauryl methacrylate, and (c) 5 through 10 wt.% polymeric monomer including a polar group selected from the group consisting of 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate and N,N-diallylmethylammonium chloride". It is the examiner's position that this phrase fails to satisfy the written description requirement under the

cited statute since there does not appear to be a written description requirement of the cited phrase in the application as originally filed, *In re Wright*, 866 F.2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989) and MPEP 2163. Applicant has not pointed to any portion of the specification, and examiner has not found any support for this phraseology in the specification as originally filed.

While the present specification provides support for the recitation of specific types of copolymers obtained from styrene, alkyl (meth)acrylate, and monomer including polar group that is 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate or N,N-diallylmethylammonium chloride, i.e. styrene, butyl acrylate, 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate or styrene, lauryl methacrylate, N,N-diallylmethylammonium chloride, there is no support in the specification as originally filed to broadly recite copolymer obtained from “(a) 20 through 90 wt.% of styrene, (b) 10 through 80 wt.% alkyl acrylate or alkyl methacrylate wherein said alkyl acrylate or alkyl methacrylate is at least one selected from the group consisting of butyl acrylate, 2-ethylhexyl acrylate, and lauryl methacrylate, and ^(c) 5 through 10 wt.% polymeric monomer including a polar group selected from the group consisting of 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate and N,N-diallylmethylammonium chloride” which includes copolymers obtained from styrene, 2-ethylhexyl acrylate, and 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate, styrene, 2-ethylhexyl acrylate, and N,N-diallylmethylammonium chloride, styrene, lauryl methacrylate, and 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate, styrene, butyl acrylate, and N,N-diallylmethylammonium chloride, etc. for which there is no support in the specification as originally filed.. The only disclosure regarding monomer having polar group that is 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate or N,N-

diallylmethylammonium chloride is found in Table 1 and example 8 of the present specification.

While these portions of the specification provide support for specific types of copolymer obtained from styrene, butyl acrylate or lauryl methacrylate, and 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate or N,N-diallylmethylammonium chloride, there is no support for broad recitation of copolymer as presently claimed.

Further, there is no support in the specification as originally filed to recite amount of 5 through 10 wt.% with respect to the monomer including a polar group that is selected from the group consisting of 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate and N,N-diallylmethylammonium chloride. With the exception of Table 1 that discloses the use of specific amounts 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate and N,N-diallylmethylammonium chloride in combination with specific types of other monomers, i.e. 60 parts styrene, 40 parts, butyl acrylate, and 7 parts-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate or 7 parts styrene, 40 parts lauryl methacrylate, and 10 parts N,N-diallylmethylammonium chloride, there is no support to broadly recite the use of 5 through 10 wt.% monomer including a polar group selected from the group consisting of 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate or N,N-diallylmethylammonium chloride as presently claimed.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation " the primary particle " in line 22. There is insufficient antecedent basis for this limitation in the claim.

Similar insufficient antecedent basis is found in each of claims 16 and 17 that recite the same phrase.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1, 4, 6-7, 9-10, 14-17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (U.S. 5,936,008) in view of Kamada et al. (U.S. 5,695,899).

Jones et al. disclose ink jet ink comprising liquid vehicle comprising water and 6-20% toner particles comprising resin, i.e. copolymer, and colorant that is pigment and/or dye and wherein the colorant is incorporated into or associated with the resin, i.e. colorant is dispersed in the resin or bonded or associated with the resin. It is further disclosed that the ink is filled into ink jet cartridge of an ink jet printer and is jetted from the printer. It is clear that the cartridge would necessarily intrinsically possess case in which the ink is stored and that the printer would necessarily intrinsically possesses printhead (col.1, lines 5-11, col.5, lines 27-33 and 38-51,

col.5, line 65-col.6, line 3, col.7, lines 28-33 and 37-49, col.10, lines 22-25 and 34-36, col.11, lines 48-61, col.12, lines 10-12, and col.15, lines 12-15).

The difference between Jones et al. and the present claimed invention is the requirement in the claims of specific copolymer.

Kamada et al. disclose the use of colored toner particle comprising 40-99% primary particle of copolymer obtained from 20-99% styrene, 10-80% alkyl (meth)acrylate including butyl acrylate, ethylhexyl acrylate, and lauryl methacrylate, and 0.5-30%, based on 100 parts styrene and alkyl (meth)acrylate, comonomer having polar group such as N, N-diallylmethylammonium chloride wherein the copolymer is obtained using emulsion polymerization and 1-60% colorant that is pigment and/or dye. It is disclosed that the comonomer possesses glass transition temperature of -30 to 80°C , more preferably -10 to 70°C and possesses mean particle size of $0.01\text{-}3\text{ }\mu\text{m}$. It is further disclosed that the colorant is dispersed in the copolymer dispersion and that the colorant is associated with the copolymer by hydrogen bond, ionic bond, etc. There is also disclosed surfactant that is used to treat the colorant (col.2, lines 9-14, 17-20, 43-46, and 51, col.3, lines 5-15, 38-43, 53-57, and 62-65, col.4, lines 28-30, col.5, lines 31-33, col.6, lines 12-13 and 21-28, or col.12, lines 15-20). The motivation for using such toner particle is that they are excellent in coloring properties due to very good transmittance, excellent in color reproduction and resolution, and excellent in various physical properties (col.8, lines 58-62).

It is noted that while Kamada et al. disclose the average particle size of the copolymer, there is no disclosure of the volume average particle size as presently claimed.

However, given that Kamada et al. disclose that the copolymer possesses average particle size that overlaps that presently claimed and given that Kamada et al. produce the copolymer by emulsion polymerization as presently claimed, it would have been natural for one of ordinary skill in the art to infer that the copolymer intrinsically possesses volume average particle size that overlaps that presently claimed.

Further, it is noted that there is no disclosure in Kamada et al. of the softening point of the copolymer.

However, given that Kamada et al. disclose copolymer obtained from same type and amounts of monomers as presently claimed, it is clear that such copolymer would intrinsically possess softening point as presently claimed.

In light of the motivation for using toner particles comprising copolymer and colorant disclosed by Kamada et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such toner particles as the toner particles in Jones et al. in order to produce ink that has excellent color properties, excellent color reproduction and resolution, and excellent physical properties, and thereby arrive at the claimed invention.

8. Claims 1, 4, 6-7, 9-10, 14-17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (U.S. 5,936,008) in view of Kamada et al. (U.S. 5,695,899), Patel et al. (U.S. 5,977,210), and Fujisawa et al. (U.S. 5,997,136).

Jones et al. disclose ink jet ink comprising liquid vehicle comprising water and 6-20% toner particles comprising resin, i.e. copolymer, and colorant that is pigment and/or dye and wherein the colorant is incorporated into or associated with the resin, i.e. colorant is dispersed in

the resin or bonded or associated with the resin. It is further disclosed that the ink is filled into ink jet cartridge of an ink jet printer and is jetted from the printer. It is clear that the cartridge would necessarily intrinsically possess case in which the ink is stored and that the printer would necessarily intrinsically possesses printhead (col.1, lines 5-11, col.5, lines 27-33 and 38-51, col.5, line 65-col.6, line 3, col.7, lines 28-33 and 37-49, col.10, lines 22-25 and 34-36, col.11, lines 48-61, col.12, lines 10-12, and col.15, lines 12-15).

The difference between Jones et al. and the present claimed invention is the requirement in the claims of specific copolymer.

Kamada et al. disclose the use of colored toner particle comprising 40-99% primary particle of copolymer obtained from 20-99% styrene, 10-80% alkyl (meth)acrylate including butyl acrylate, ethylhexyl acrylate, and lauryl methacrylate, and 0.5-30%, based on 100 parts styrene and alkyl (meth)acrylate, comonomer having polar group such as N, N-diallylmethylammonium chloride wherein the copolymer is obtained using emulsion polymerization and 1-60% colorant that is pigment and/or dye. It is disclosed that the comonomer possesses glass transition temperature of -30 to 80°C , more preferably -10 to 70°C and possesses mean particle size of $0.01\text{-}3\text{ }\mu\text{m}$. It is further disclosed that the colorant is dispersed in the copolymer dispersion and that the colorant is associated with the copolymer by hydrogen bond, ionic bond, etc. There is also disclosed surfactant that is used to treat the colorant (col.2, lines 9-14, 17-20, 43-46, and 51, col.3, lines 5-15, 38-43, 53-57, and 62-65, col.4, lines 28-30, col.5, lines 31-33, col.6, lines 12-13 and 21-28, or col.12, lines 15-20). The motivation for using such toner particle is that they are excellent in coloring properties due to

very good transmittance, excellent in color reproduction and resolution, and excellent in various physical properties (col.8, lines 58-62).

It is noted that while Kamada et al. disclose the average particle size of the copolymer, there is no disclosure of the volume average particle size as presently claimed.

Patel et al., which is drawn to ink jet inks, disclose the use of polymer having volume average particle size of 0.1-1 micron in order to produce an ink that will not clog the printer nozzles (col.3, lines 14-15 and col.4, lines 57-59).

Further, it is noted that there is no disclosure in Kamada et al. of the softening point of the copolymer.

Fujisawa et al., which is drawn to ink jet inks, disclose that the softening temperature of polymers utilized in ink jet inks range from 50 -120⁰ C wherein such temperature allows the ink to be heated quickly so that the ink dot is formed before penetration of ink into recording medium occurs so that feathering of the ink on the recording medium is prevented (col.3, lines 13-35).

In light of the motivation for using toner particles comprising copolymer and colorant disclosed by Kamada et al., for using copolymer having specific volume average particle diameter disclosed by Patel et al., and for using copolymer with specific softening temperature disclosed by Fujisawa et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such toner particles wherein the copolymer possesses such volume average particle diameter and softening point as the toner particles in Jones et al. in order to produce ink that has excellent color properties, excellent color reproduction and resolution, and

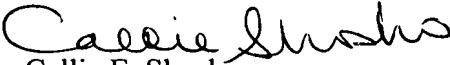
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excellent physical properties wherein the ink does not clog the toner particles and does not feather, and thereby arrive at the claimed invention.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
4/29/07